

A silhouette of a helicopter is shown against a bright orange and yellow sunset sky. The helicopter is positioned in the upper right portion of the frame. A person is standing near the tail of the helicopter, looking towards the sun. The overall scene is dark, with the helicopter and the person appearing as black shapes against the glowing background.

Vision 2000

**DoD CIO 2nd Annual Conference
Wintergreen VA 1999**

Marv Langston, DCIO

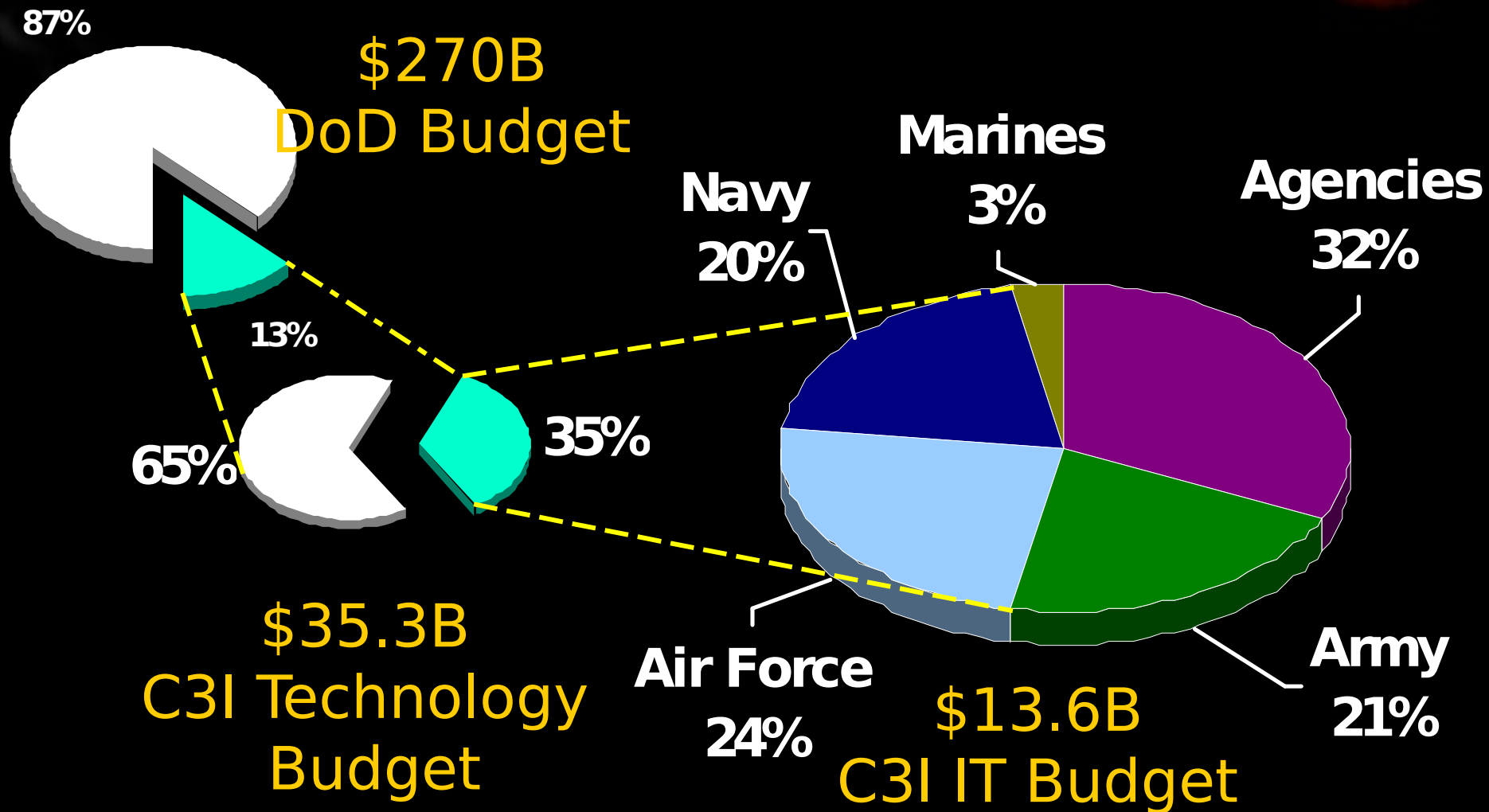
Information Technology

- DoD Has
 - 2-3M Computers
 - 2,017 Mission Critical Systems
 - 4,768 Non Mission Critical Systems
 - Thousands LANs & Hundreds of WANs/Long Haul Circuits
 - Thousands of IT Applications



Large Complex Global Enterprise

DoD IT Budget



Full Spectrum Communications

75 Baud
Teletype-
Era
Service



SONET
(2.4 Gb/s)

Global Reach

Bandwidth Diversity



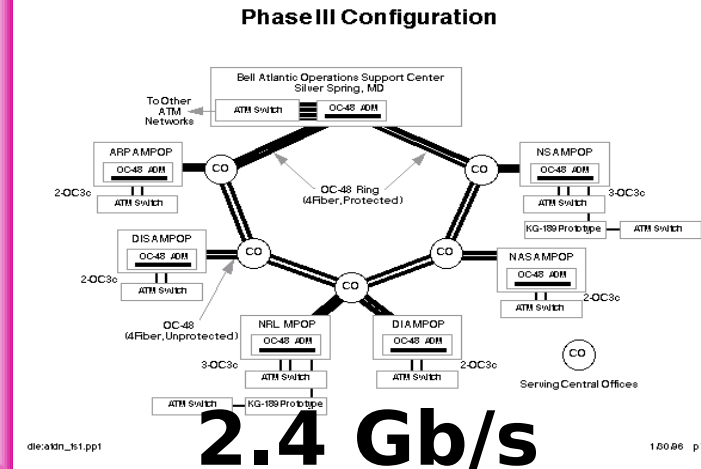
**600bps -
1600bps**



2.2kbs - 274Mb/s

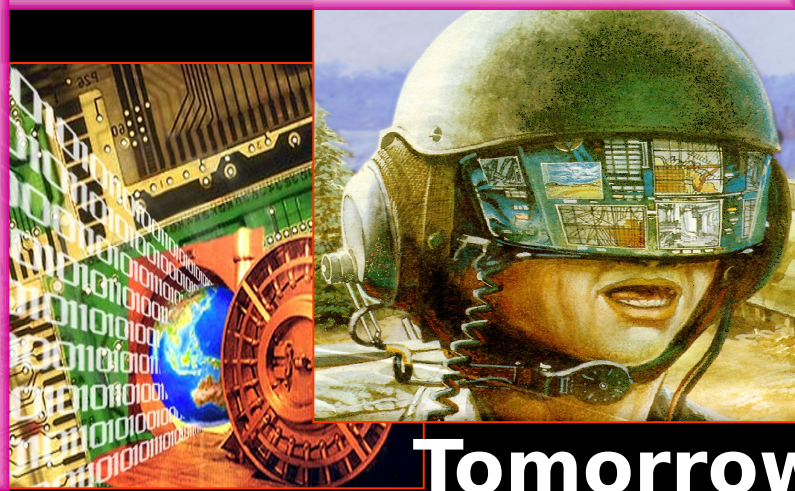


1.5 - 45 Mb/s



2.4 Gb/s

Computing Diversity



Battle Management

LATENCY

FORCE COORDINATION

**IP Networks
PACKET SWITCHED COMMS** MINUTES

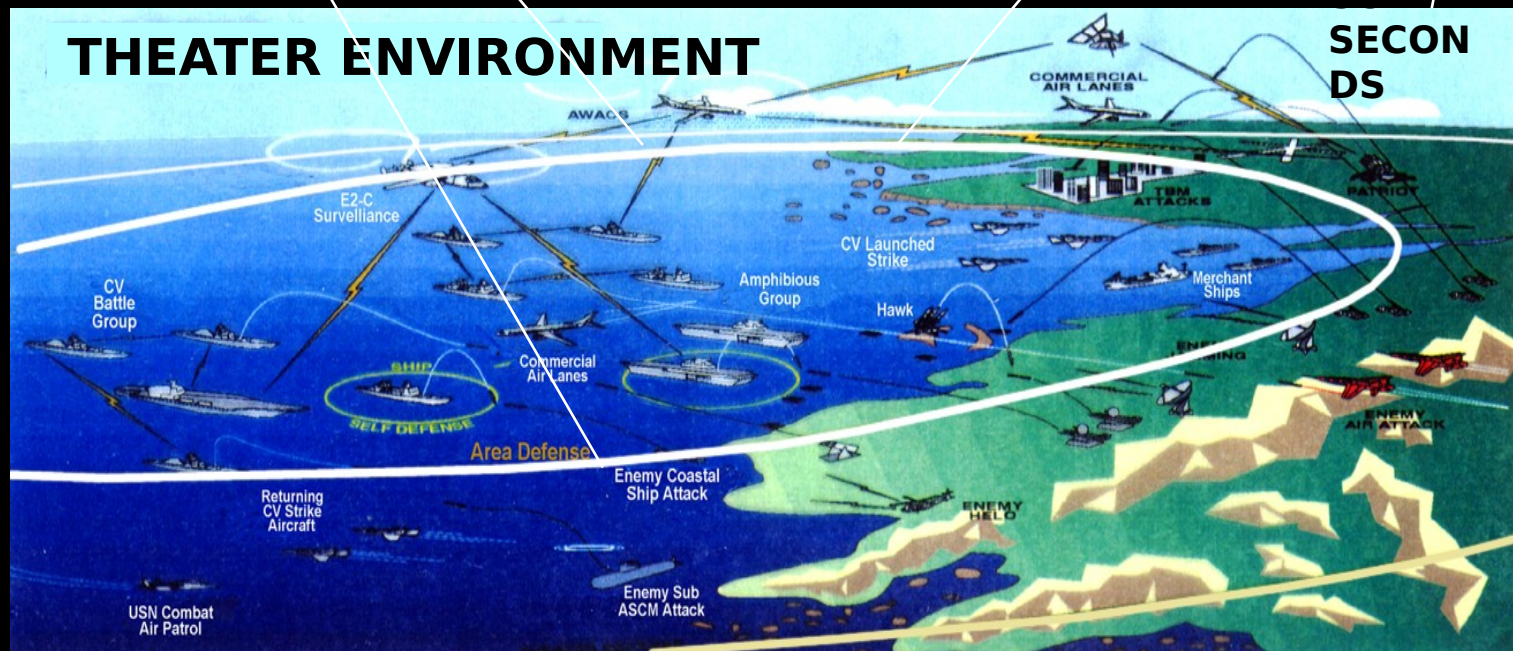
FORCE CONTROL

LINK 16/LINK 11 SECONDS

WEAPONS CONTROL

Fire Control Links SECONDS

THEATER ENVIRONMENT



Communications

- **Teletype Era Communications Centers**

- High Frequency (HF) Transmitters
- DoD Satellites
- Commercial

Yesterday



- **Teletype Era & Multiple 1st Generation Networks**

- DoD & Some Commercial Satellites
- Some HF Transmitters
- Commercial Phones

Today



- **Robust Global Network**

- Commercial & Some DoD Satellites
- Some HF Transmitters
- Commercial

Tomorrow



Computing

- Mainframes
- Proprietary Software
- Unresponsive
- Secure
- Consolidated Mainframes
- Proliferating Client-Server
- Customized COTS
- GOTS
- Vulnerable
- Best Practice Computing
- COTS
- Limited GOTS
- Secure

Yesterday



Today



Tomorrow



A silhouette of a helicopter is visible against a sunset sky. The sun is a bright orange circle on the right, and the helicopter's rotors and body are dark against the lighter sky. The overall tone is warm and dramatic.

From Past to Future

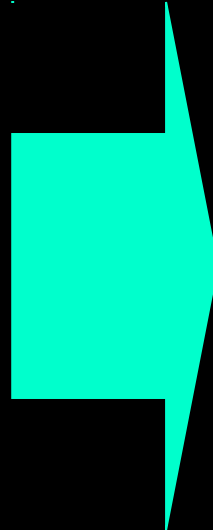
- **Where we started**
- **Where we are**
- **Where we are headed**

Where We Started...

What We Faced

STARTING POINTS

- New organization
- Long legacy of fragmentation
- Pervasive mistrust
- Antiquated policies
- Lack of strategic focus
- Untested team
- Unfamiliar community



CHALLENGES

- Fundamental new threats
- Warfighting revolution
- Behind Y2K curve
- Security vulnerabilities
- Disintegration
- Stakeholder expectations
- Achieve Joint Vision

A silhouette of a helicopter is visible against a bright orange and yellow sunset sky. The sun is a large, glowing orb on the right side of the frame. The helicopter's rotors are blurred, suggesting motion. The overall scene is a dramatic, high-contrast image.

1999 Goals We Set

1. Y2K
2. Information Assurance
3. Global integrated Network
4. Knowledge Based Workforce
5. e-Business & e-Commerce

DoD CIO Action Plan 1999

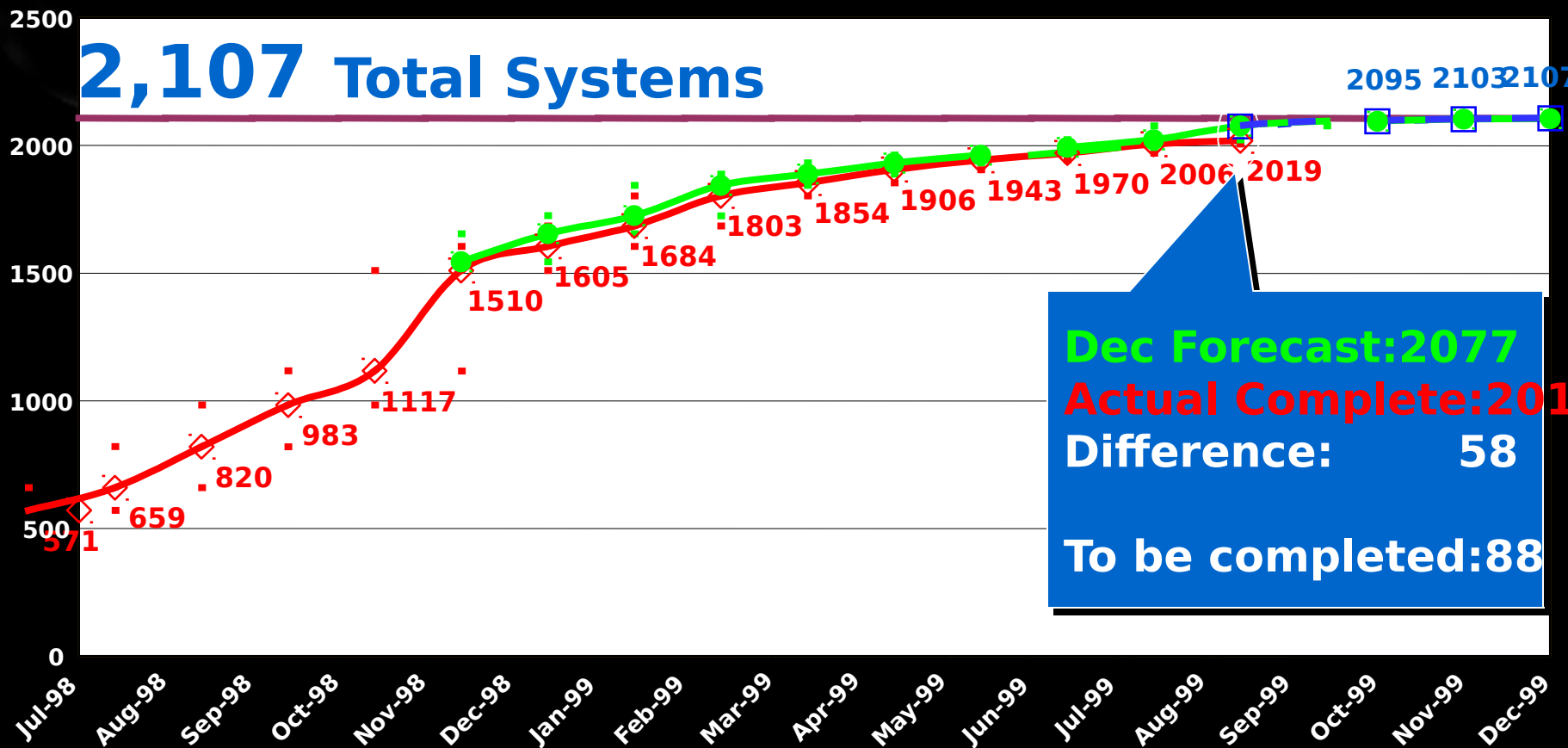
- **Less than 1 year after formal approval (DoD CIO Council, Oct. 27, 1998) you have closed out 70% of the actions**
- **Your plan contained:**
 - **4 major topic areas:**
 - **(Y2K; network enterprise; process reengineering; CIO governance)**
 - **45 goals**
 - **167 initiatives**
 - **421 separate actions and deliverables**
 - **DCIO responsible for about 60%**
- **It has served to get us started**
- **It has helped others in related areas2**

How Far We've Come... Y2K



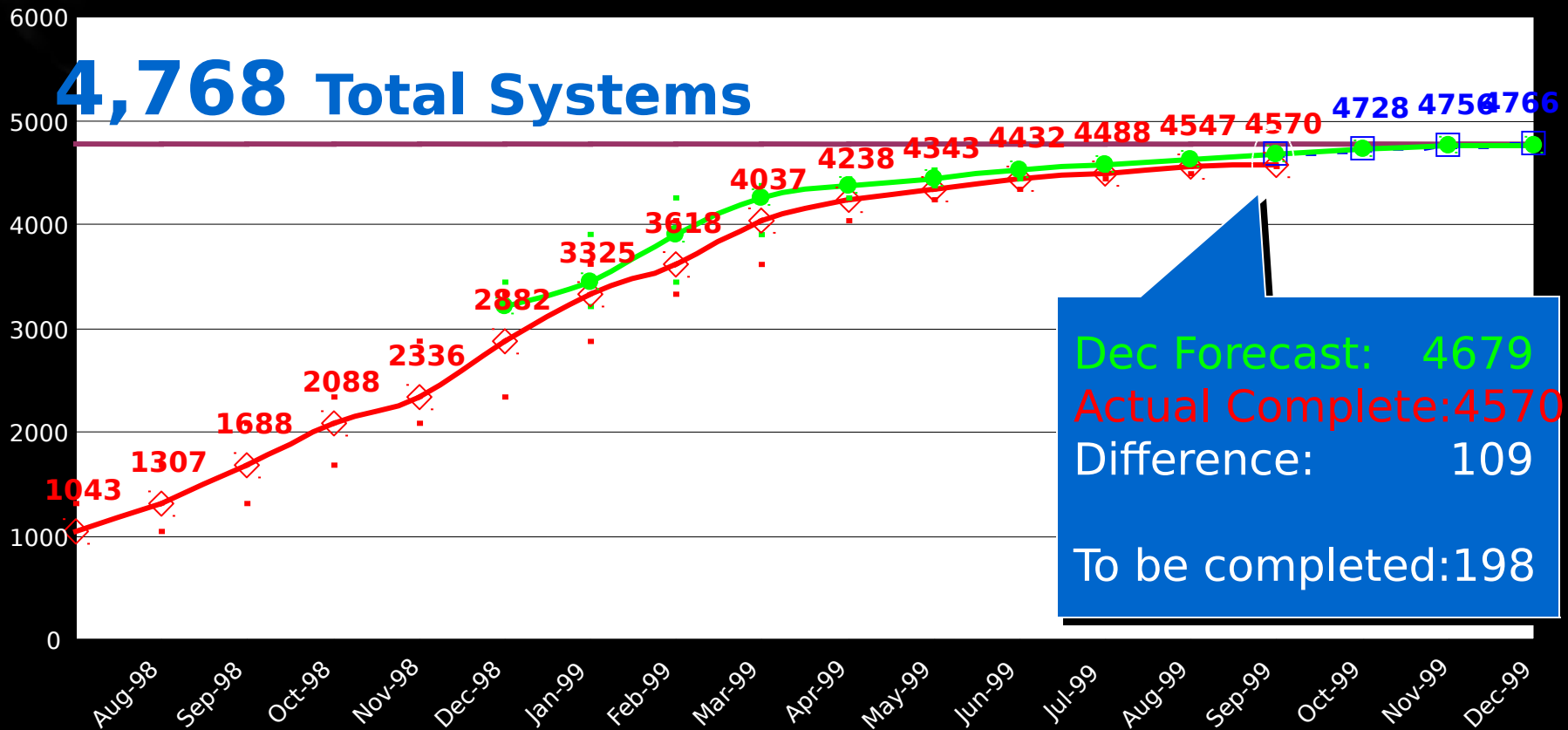
- **Y2K -- Comprehensive IT inventory**
- **Tabletop exercises**
- **Successful operational evaluations**
- **Testing**

DoD Mission Critical Systems Completion Chart



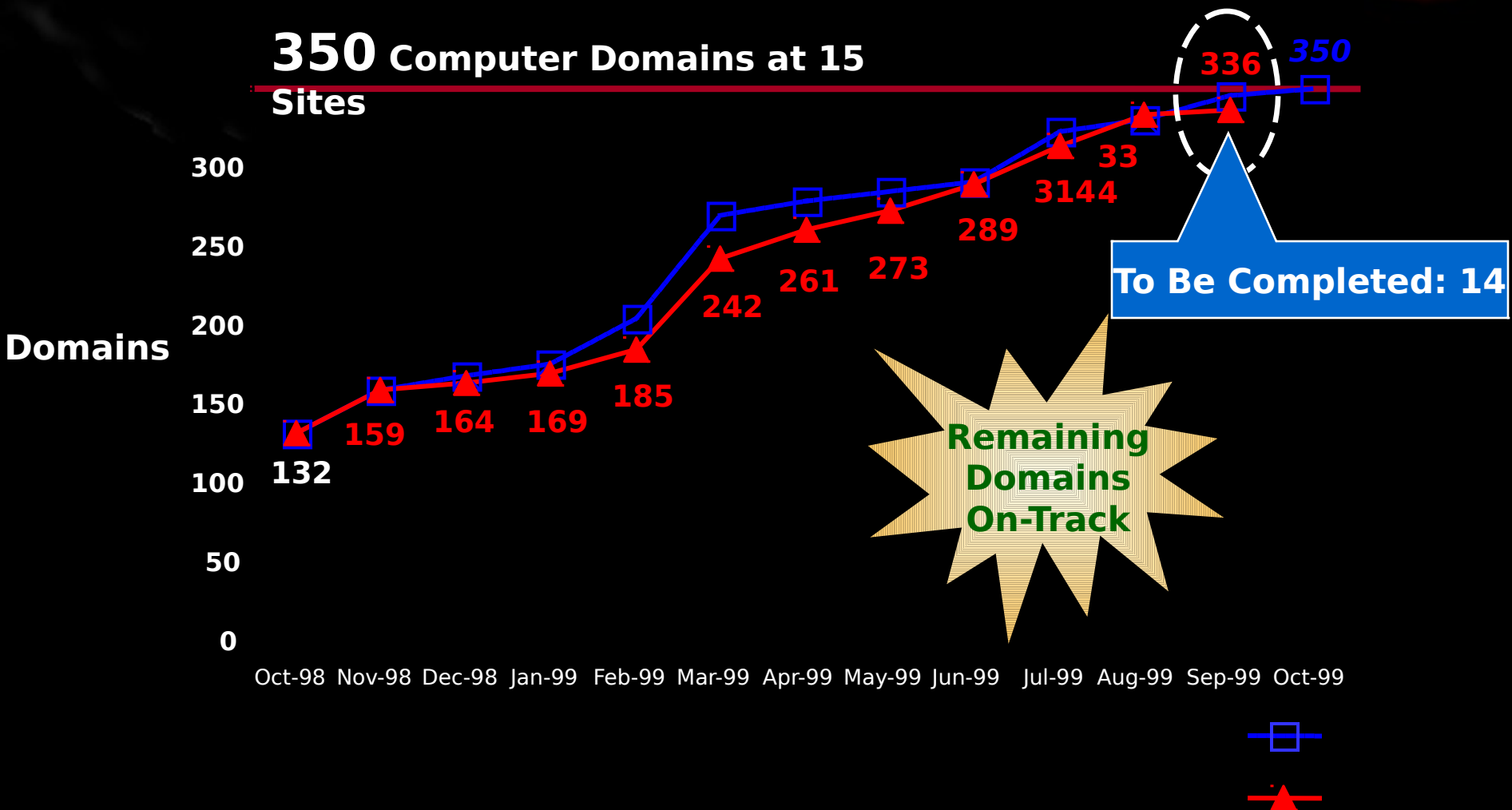
Data as of: 09/17/1999
 Generated on: 9/17/1999
 Excluding Dev(1), Dev(2), Terminated/Retired and Replacement

DoD Non Mission Critical Systems Completion Chart

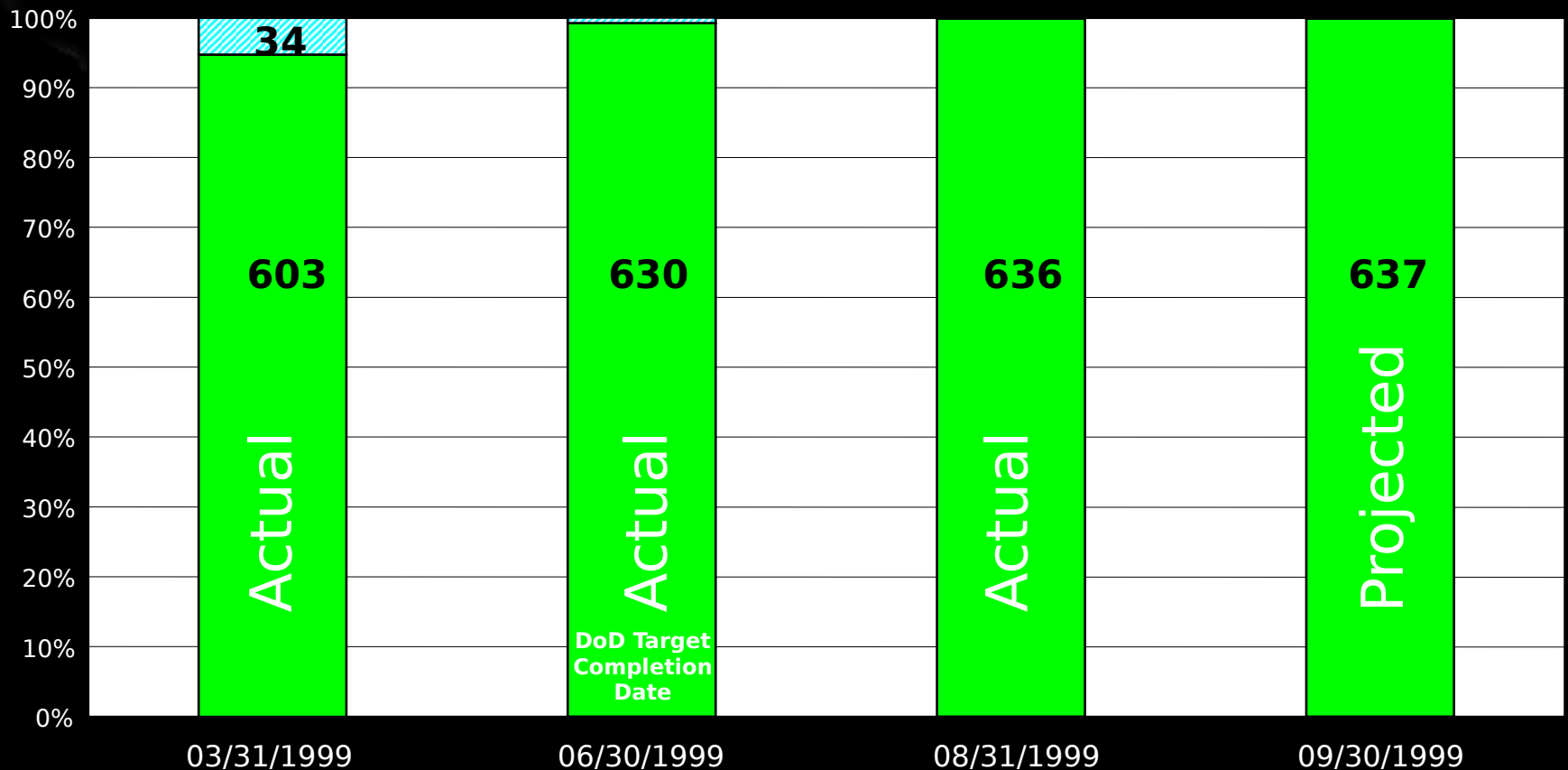


Data as of: 09/17/1999
Generated on: 9/17/1999
Excluding Dev(1), Dev(2), Terminated/Retired and Replacement

Defense Megacenters Computer Domain Completion Chart



Completion Progress (637 Installations)



Data as of: 09/14/1999; Generated on: 9/17/1999

Complete Fix

Policies in Progress



- ✓ **Configuration Management Implementation**
- ✓ **NIPRNet Security Policy**
- ✓ **Y2K Freedom of Information Act Policy (Host Nation)**

A silhouette of a helicopter is visible against a bright orange and yellow sunset sky. The sun is a large, glowing orb on the right side of the frame. The helicopter's rotors and tail are clearly outlined.

How Far We've Come... InfoAssurance

- **Foundation of security policy**
- **PKI**
- **Smart cards**

The Security Dilemma



Open System, Network Enterprise

- Cost Effective
- Easily Maintained
- Responsive to Change
- User Friendly



Vulnerabilities: A Way of Life

- Global Exposure to Malevolent Actors
- Hacker Tools/Techniques Freely Exchanged
- Solutions Become a Race Against Time

A silhouette of a helicopter is visible against a bright orange sunset sky. The sun is a glowing orb on the right side of the frame, and the helicopter's rotors are partially visible. The overall scene is dark, with the sunset providing the primary light source.

Definitions

- **Public Key Technology** is a method of encryption where the encryption and decryption process are related, but the relationship is not readily discernable. Thus, one part of the process may be made public, without disclosing the other (private) part.
- A **Public Key Infrastructure** provides for the generation, distribution, and revocation of Public/Private key pairs to Valid users within a Community of Interest.

What is a Certificate?



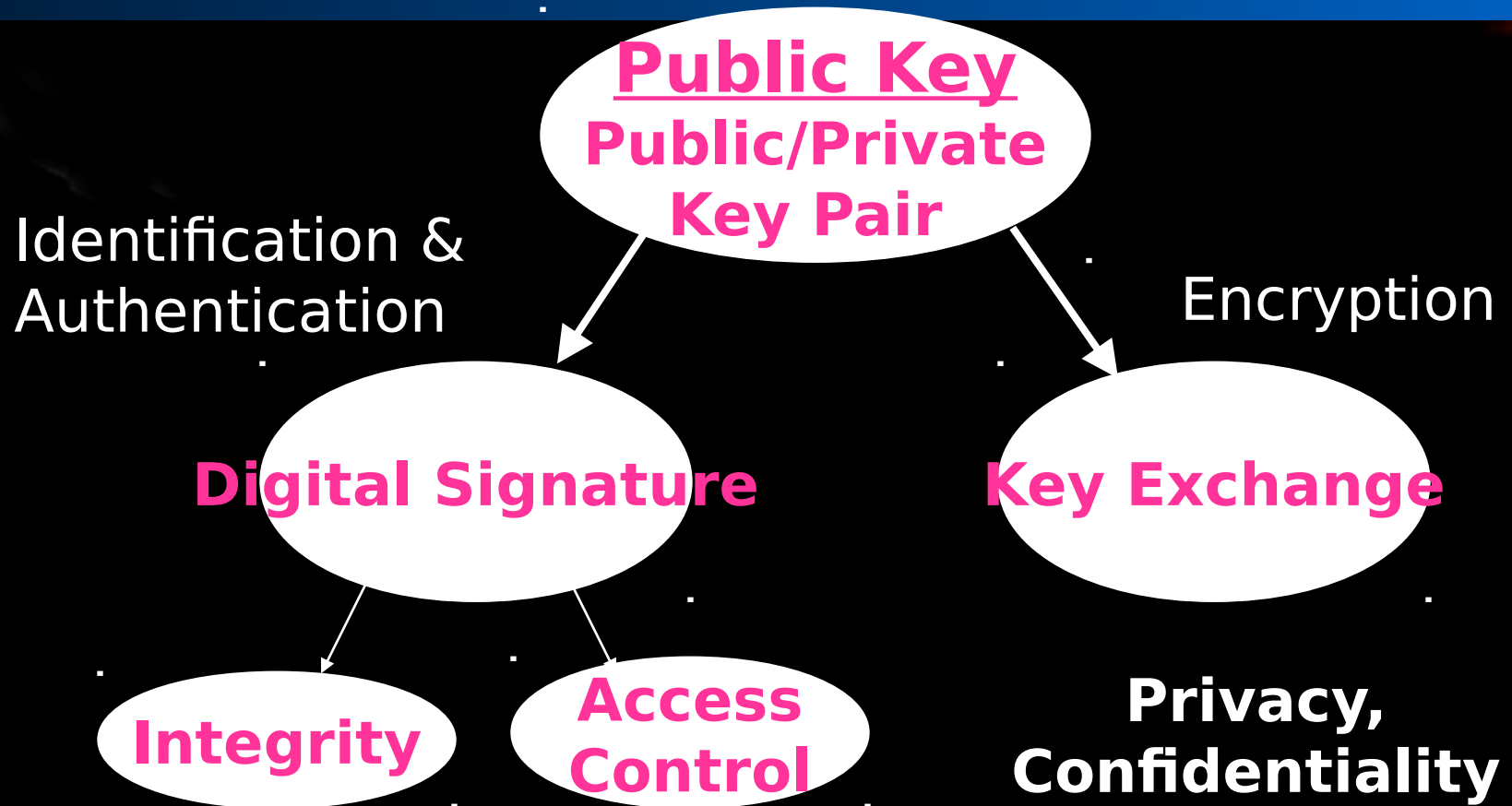
A Certificate is a binding of an Electronic Identity
with a Public/Private Key Pair

What is a Valid Certificate?



A Valid Certificate is one where the Identity of the Person/Component is authenticated by a recognized authority, and securely bound to the Public/Private Key Pair

Public Key Technology Applications



Authenticity, Accuracy, Availability
Non-repudiation



PKI Applications

Desktop

- E-mail
- E-commerce
- File Transfer Protocol and TELNET
- Secure Sockets Layer
- File Encryption
- Unitary Log-in
- Client-Server Authentication
- Remote Access

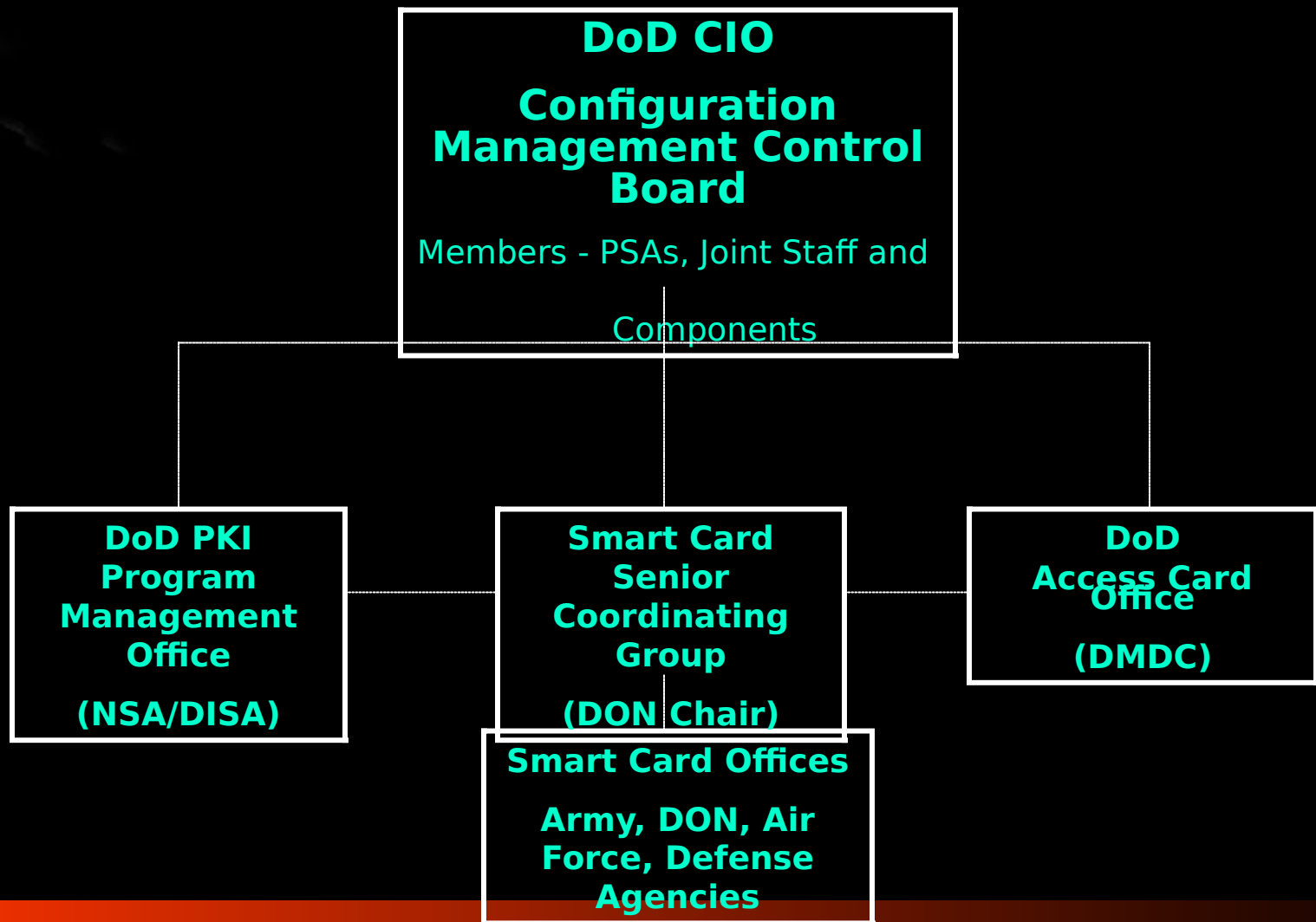
Network

- Virtual Private Networks
- ipSEC
- Network Encryption
- Firewall Authentication
- ATM Network Encryption
- SONET Encryption
- Secure Network Mgmt Protocol Authentication

DoD Smart Card Roadmap

- The card platform will include all relevant media
- This will be the predominant platform for the PKI hardware token
- This “DoD Common Access Card (CAC)” will be the Military and Civilian Identification Card
- We will use DEERS/RAPIDS platform for card maintenance
- DoD (OSD/C3I/CIO) will head up a configuration control board (with Service Reps) to specify technical allocation of chip
- Space will be allocated on the chip for Services/Agencies specific application
- OSD functional leaders (P&R, Comptroller, C3I, etc.) will convene community panels to develop consensus for data element standardization on chip space

Smart Card Management



How Far We've Come...

Global Network

- **Global Information Grid**
- **Policy and guidance memoranda in final coordination**
- **Implementation challenges await**

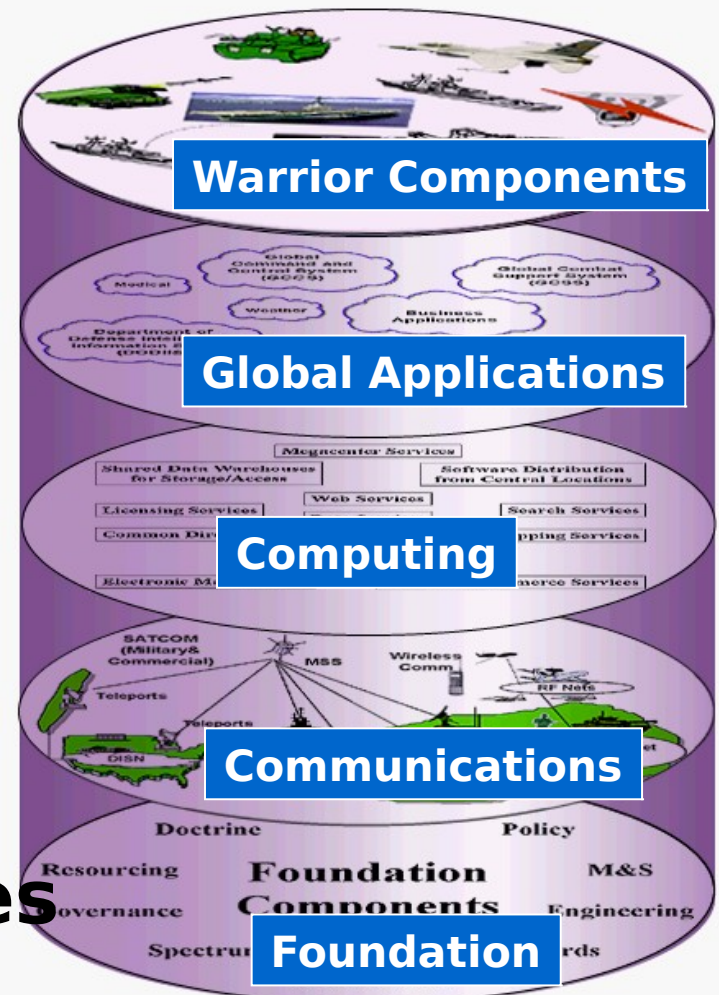
Global Information Grid... Definition

“The globally interconnected, end-to-end set of information capabilities, associated processes and personnel for collecting, processing, storing, disseminating and managing information on demand to warfighters, policy makers, and support personnel. The GIG includes all owned and leased communications and computing systems and services, software (including applications), data, security services and other associated services necessary to achieve Information Superiority. It also includes National Security Systems as defined in section 5142 of the Clinger-Cohen Act of 1996. The GIG supports all Department of Defense, National Security, and related Intelligence Community missions and functions (strategic, operational, tactical and business), in war and in peace. The GIG provides capabilities from all operating locations (bases, posts, camps, stations, facilities, mobile platforms and deployed sites). The GIG provides interfaces to coalition, allied, and non-DoD users and systems.”

Global Information Grid... Vision

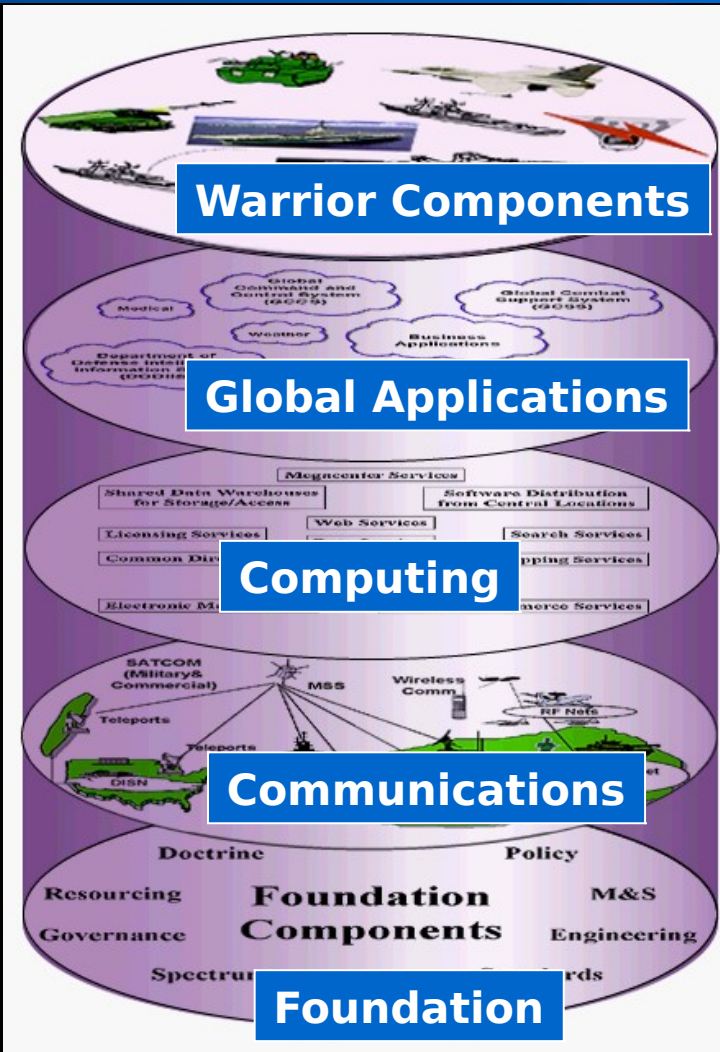
- Information Assurance
- Interoperability
- Computer Consolidation
- Network Consolidation

**Globally Enabling
Warfighter & Support Services**



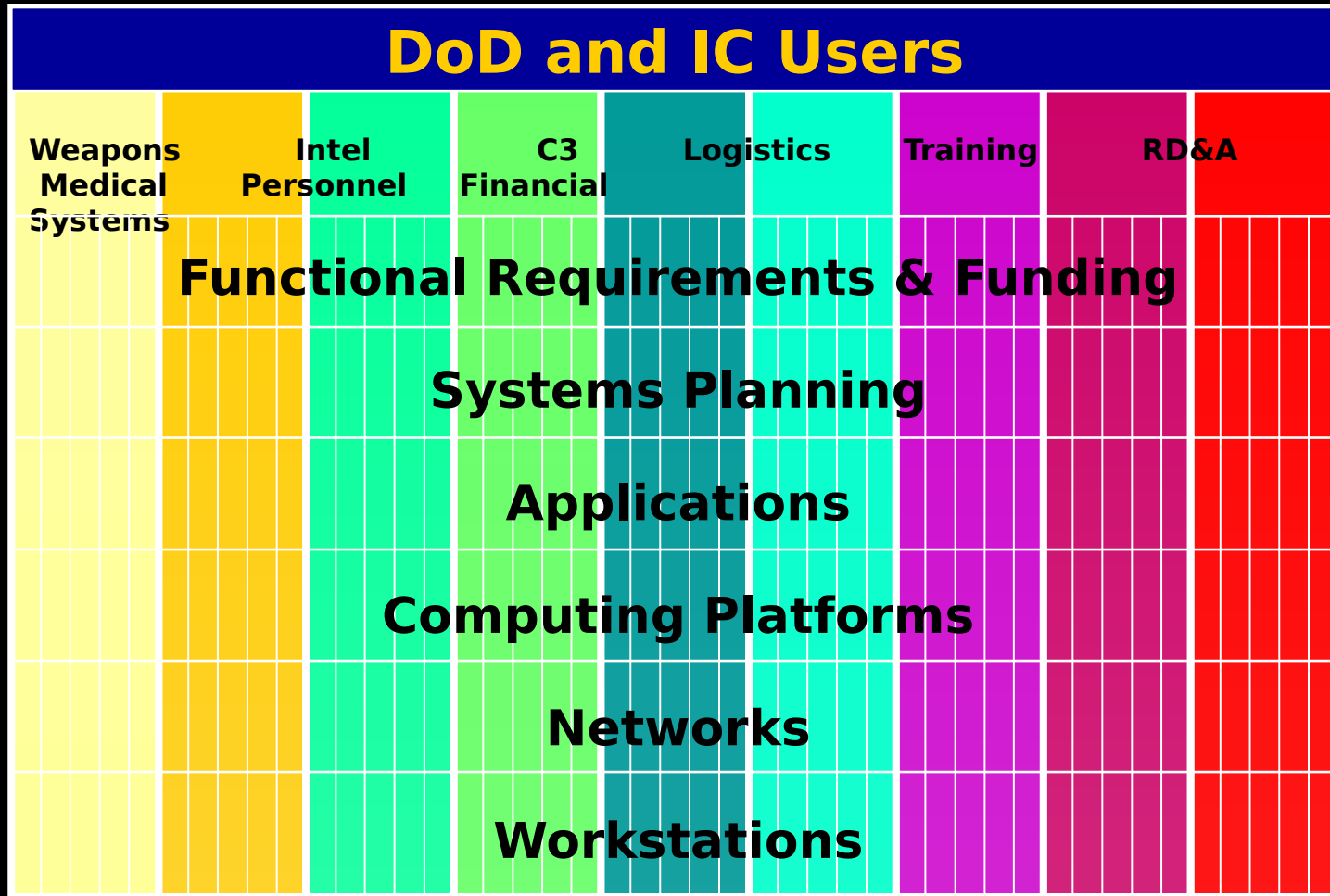
Target

- Global Secure Information
- Information-on-Demand
- Combat & Business
- Coalition, Allied, & Non-DoD



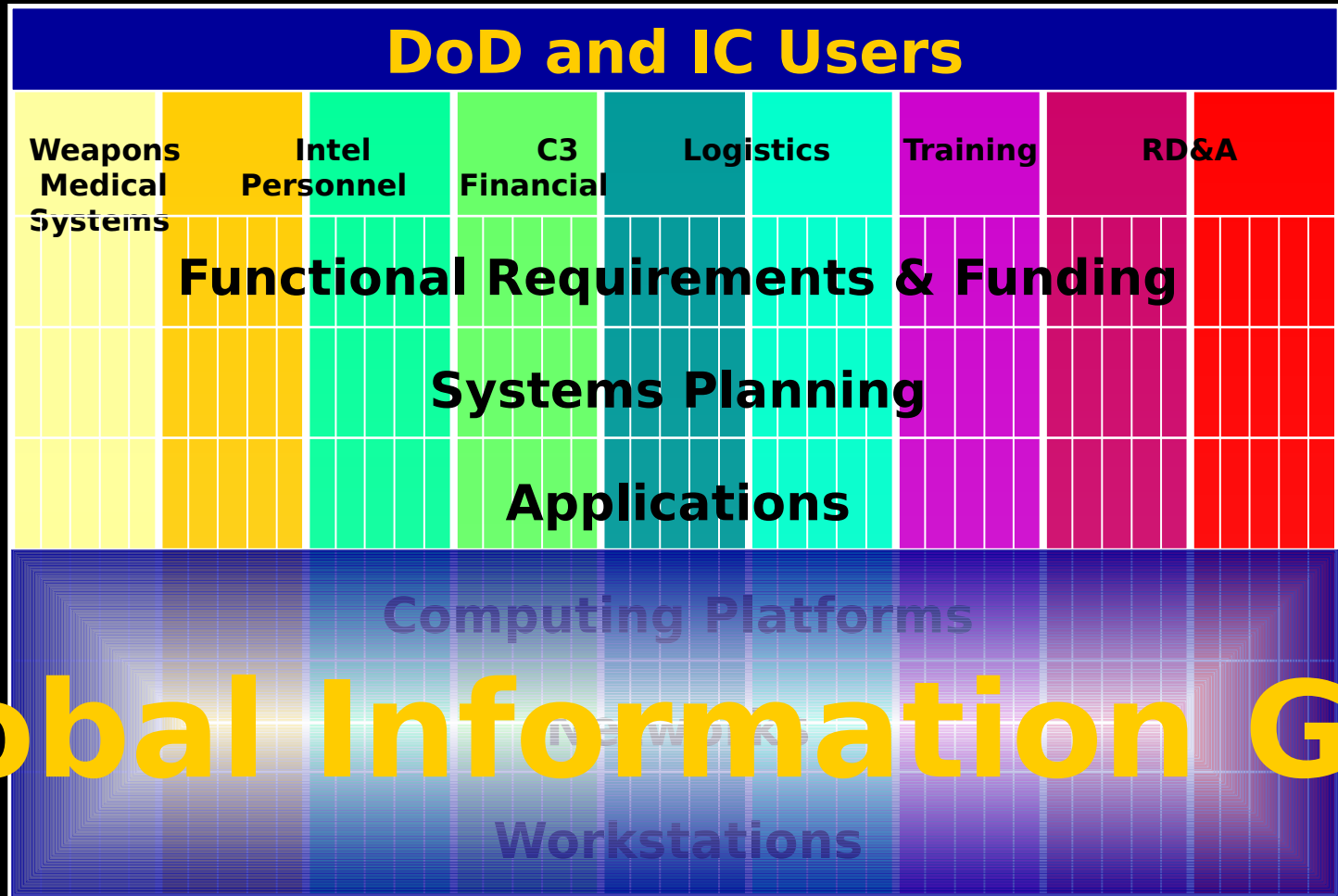
Decentralized Planning & Execution

- Stovepipe Systems
- Duplicative Capabilities
- Fragmented IT Budget



Enterprise Infrastructure

- Common Global Computing & Communications
- Consistent with Industry Best Practices
- Secure, Interoperable Systems



Global Information G



Unifying Principles

- **Preserve & Enhance Information Superiority for U.S. Forces**
- **Provide Globally Interconnected Capability**
- **Support Warfighters, HQ & Support Personnel**
- **Include Strategic, Operational, Tactical & Business Systems**
- **Interface with Coalition, Allied & Non-DoD Users**

GIG Policy Thrusts



Information Assurance

Interoperability

Information Management

Network Operations

Computer Consolidation

Network Consolidation

- **Align Research and Development**

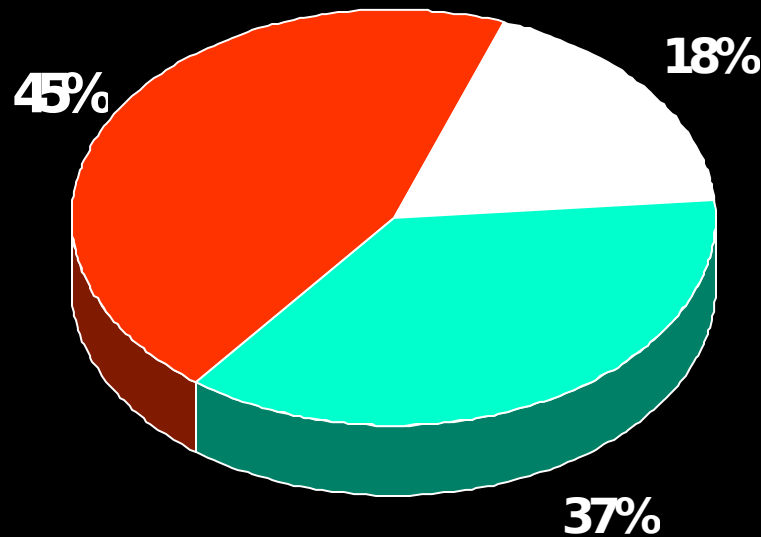
How Far We've Come... Enterprise Software

- **Leveraging DoD buying power**
- **Improve interoperability through widespread use of commercial applications**
- **Reduce the cost to every user**
 - **Upfront money for best prices**
 - **Working capital fund support**
- **Educate users and sellers**

DoD Enterprise Software Licensing

**Enterprise
Support
Software
\$550M**

**Database
Software
\$220M**



**Office
Desktop
Software
\$450M**

Commercial Enterprise Software Expenses \$1.22B per

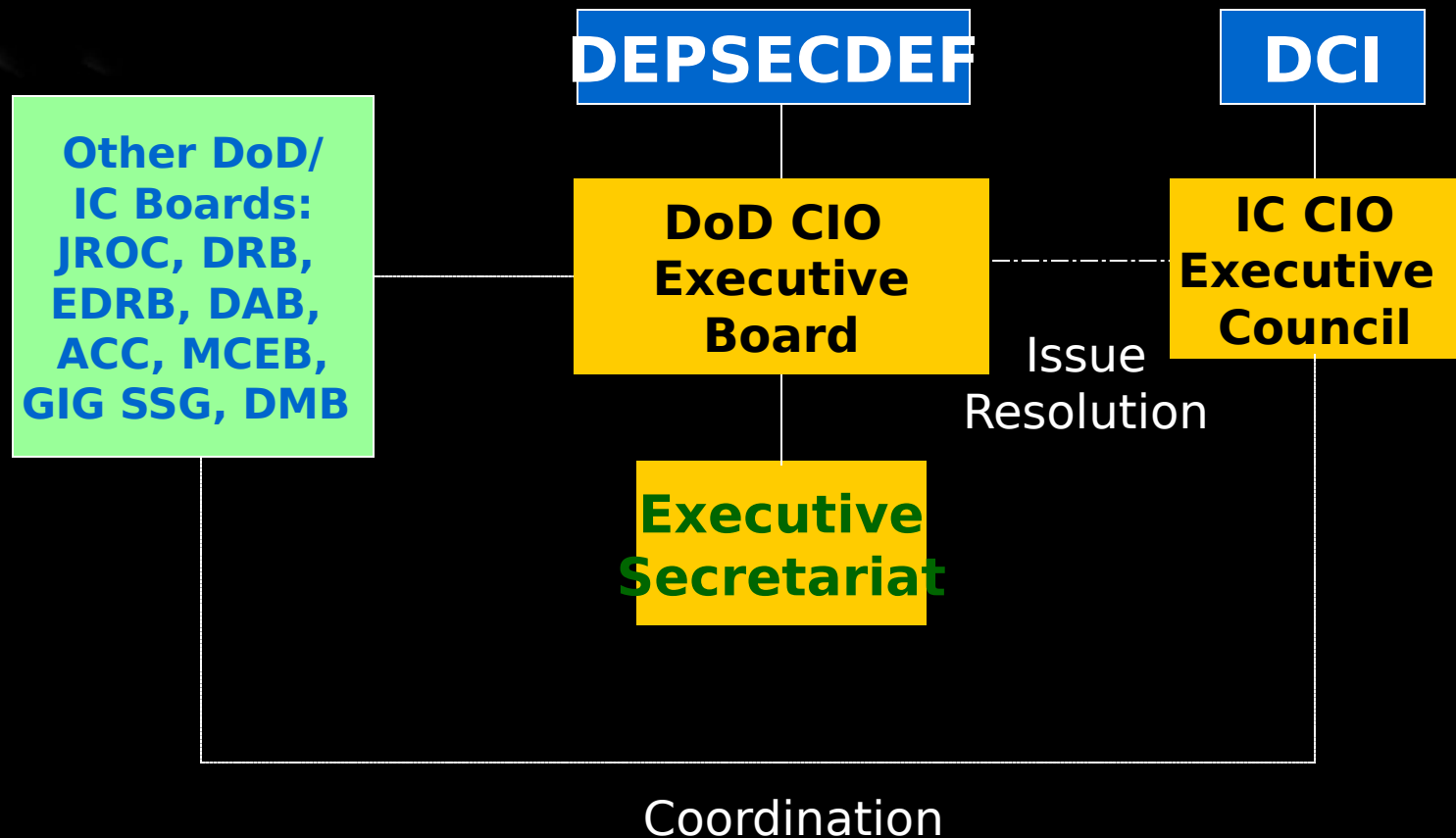
How Far We've Come...

Governance



- **CIO community**
- **DoD CIO Executive Board and charter**
- **IM strategic plan revised**
- **Fed CIO Council affiliation**

GIG Governance Organization



How Far We've Come...

Knowledge Management



- **Knowledge workforce**
- **KM directorate**
- **C3I intranet - A Net**
- **CIO competencies**
- **CIO certification program**

How Far We've Come...

Acquisition & Investment



- **IT acquisition and investment**
- **Portfolio management and oversight**
- **Registration and certification**

How Far We've Come... e-Commerce



- **e-Business & e-Commerce**
- **Strategic Plan & Implementation Plan**
- **Directives and operational architecture**
- **e-Mall expansion**
- **Performance metrics**

Where We're Headed.... How to Get There

STRATEGIES

- Transparency
- Trust
- Transformation

VISION 2000

- Making Information
- Superiority Happen

MISSION

- Direction & policy
- Guidance & oversight
- Catalyze use of tech

Strategies to Achieve Vision 2000

TRANSPARENCY

- Architecture
- Investment
- Process
- Security

TRUST

- Warfighter Interests
- Value Delivered
- Integration
- Governance
- Participation

TRANSFORMATION

- Professional Growth
- Culture
- Approaches
- e-Processes
- Policies

The Next 12 Months... Direction & Policy



- **Institutionalize the Global Information Grid**
- **Make the CIO Executive Board a success**
- **Make information assurance real**
- **Make interoperability real**
- **Learn how to implement network operations**
- **Understand where computer consolidation makes sense**
- **Make major headway toward consolidate networks**
- **Learn to manage the department's information**
- **Align the IT tech base to serve the future**

The Next 12 Months... Guidance & Oversight

- **We must learn to do oversight like we worked Y2K... as a team**
 - Oversight as accountability vice milestone checkups
 - Configuration controlled system definitions kept as the validated system list
- **Output based portfolio management to help prioritize our investments and repairs**
 - Large data bases provide output metrics
 - Requirements, acquisition, and repair provide the quality
- **Clinger-Cohen certified systems become the norm**

The Next 12 Months... Catalyze Use of IT

- **We can't buy information superiority off the self (COTS)**
- **We must learn to leverage COTS, create superior GOTS, and bring the two together**
 - **Our architectures must leverage both**
- **COTS can close our non-productive gaps**
- **But... GOTS plus superior design must deliver information superiority**

The Challenge To Us All



- **Build momentum**
- **Leverage Y2K progress**
- **Lead by example**
- **Nourish community**
- **Develop relationships**